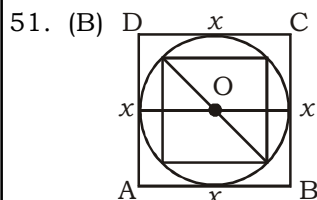


RPF (CONSTABLE) MOCK TEST – 9 (SOLUTION)



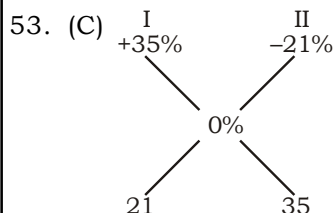
Let the side of the original square = x unit
So, area of this square = x^2 unit²
∴ Diameter of circle = x unit
Now, the diagonal of square cut from this circle = x unit

So, the side of this square = $\frac{x}{\sqrt{2}}$ unit

∴ Required area = $\frac{x^2}{x^2} \times 100 = 50\%$

Therefore, the area of the new square will be 50% of the area of the original square.

52. (C) When $(x^5 - 3x^4 + x^3 + 5x - 1)$ divided by $(x - 2)$
Remainder
= $2^5 - 3 \times 2^4 + 2^3 + 5 \times 2 - 1$
= $32 - 48 + 8 + 10 - 1$
= 1



Ratio of the CP = $21 : 35 = 3 : 5$

ATQ,

8 units → 1600

1 unit → 200

CP of the 1st article = ₹ 600

CP of the IInd article = ₹ 1000

The SP of the IInd article

$$= 1000 \times \frac{79}{100} = ₹ 790$$

54. (A) Let they meet after t hour.

ATQ,

$$\text{time } (t) = \frac{835}{150 + 50} = \frac{835}{200} \text{ hours}$$

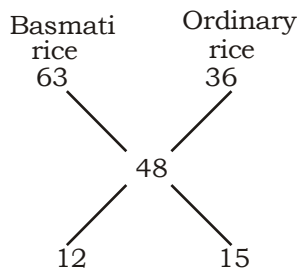
∴ Lines written by Ist boy

$$= 150 \times \frac{835}{200} = \frac{2505}{4} = 626 \frac{1}{4} \text{ times}$$

Therefore, they meet at 627th line.

55. (D) CP of the total mixture

$$= 60 \times \frac{100}{125} = ₹ 48 \text{ per kg}$$



Ratio of their quantity = $12 : 15$
= $4 : 5$

ATQ,

5 units = 30

1 unit = 6

So, the quantity of Basmati rice = 4×6
= 24 kg

56. (B) Ram does 60% work in 12 days
He completes the whole work

$$= \frac{12 \times 100}{60} = 20 \text{ days}$$

Ram Atul Mayank

Efficiency 4 : 2 : 1

Total work = $20 \times 4 = 80$ units

They complete rest 40% work

$$= \frac{80 \times \frac{40}{100}}{7} = \frac{32}{7} = 4 \frac{4}{7} \text{ days}$$

57. (C) Let the side of the square = a unit

ATQ,

Base perimeter of cylinder = Side of the square

$$\Rightarrow 2\pi r = a$$

$$\Rightarrow \frac{r}{a} = \frac{1}{2\pi} \Rightarrow r : a = 1 : 2\pi$$

58. (C) Let the original speed of the cyclist = x km/hr

We have,

$$\text{Distance} = \frac{S_1 \times S_2}{(S - S_2)} \times \text{time}$$

$$\Rightarrow 52 = \frac{x \times (x - 1)}{1} \times \frac{20}{60}$$

$$\Rightarrow x(x - 1) = 52 \times 3$$

$$\Rightarrow x(x - 1) = 13 \times 12$$

$$\Rightarrow x = 13$$

So, the original speed will be 13 km/hr.

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59. (A) Given number
 $N = 90 \times 66 \times 441 \times 324 \times 77$
 $N = 3^2 \times 10 \times 3 \times 22 \times 3^2 \times 49 \times 3^4 \times 4 \times 77$
 $N = 3^9 \times 10 \times 22 \times 49 \times 4 \times 77$
 \therefore This number N is divisible by 3^n .
 So, n should be 9.

60. (C) ATQ,
 Speed of B = $\frac{100}{10} = 10$ m/sec
 Time taken by B to cover 1000 m
 $\text{time} = \frac{1000}{10} = 100$ sec
 \therefore Time taken by A to complete the race
 $= 100 - 10 = 90$ sec
 Now, time taken by B till injured
 $= \frac{570}{10} = 57$ sec
 And, time taken by B after he gets injured
 $= \frac{430}{5} = 86$ sec
 \therefore Total time taken by B = $57 + 86 = 143$ sec
 So, A beats B = $143 - 90 = 53$ sec

61. (A) $\sqrt{\frac{x}{y}} = 6 - \sqrt{\frac{y}{x}}$
 $\Rightarrow \sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 6 \Rightarrow \frac{x+y}{\sqrt{xy}} = 6$
 $\Rightarrow \frac{x^2 + y^2 + 2xy}{xy} = 36$
 Now we have, $x - y = 8$
 $x^2 + y^2 = 64 + 2xy$
 Now, the expression becomes,
 $\frac{64 + 4xy}{xy} = 36 \Rightarrow \frac{64}{xy} = 36 - 4 = 32$
 $\Rightarrow xy = 2$

62. (D) ATQ,
 $55\frac{5}{9}\% = \frac{500}{900} = \frac{5}{9}$
- | | |
|---------------------|-----------------------------|
| I
$\frac{7}{18}$ | II
$\frac{19}{27}$ |
| \ | / |
| $\frac{5}{9}$ | |
| / | \ |
| $\frac{4}{27}$ | $\frac{3}{18} \uparrow 8:9$ |
- Required ratio = 8 : 9

63. (D)



- \therefore There are 9 ribs in an umbrella.
 The angle between two consecutive ribs
 $= \frac{360^\circ}{9} = 40^\circ$
 \therefore Area between two consecutive ribs of the circle = $\frac{40^\circ}{360^\circ} \times \pi r^2$
 $= \frac{1}{9} \times \frac{22}{7} \times 18 \times 18 = 113.14 \text{ cm}^2$

64. (B) If we take one number is 1 and other number should be anything else, then we find-
 $(1, 2) \Rightarrow 1 \times 2 = 2$
 $1 + 2 = 3$
 $(1, 3) \Rightarrow 1 \times 3 = 3$
 $1 + 3 = 4$
 $(1, 5) \Rightarrow 1 \times 5 = 5$
 $1 + 5 = 6$
 So, one of the numbers must be 1.

65. (B) Let rate and quantity of petrol 100/litre and ₹ 100 litre respectively.
 So, rate \times quantity = consumption
 $100 \times 100 = 10000$
 $+25\% \left(\begin{array}{c} 100 \times 100 = 10000 \\ \downarrow \quad \downarrow \\ 125 \times x \end{array} \right) +15\%$
 $x \text{ (let)} = 11500$
 Now, $x = \frac{11500}{125}$
 $\Rightarrow x = 92$ litres
 Percentage change in quantity of petrol
 $= \frac{100 - 92}{100} \times 100\% = 8\%$

66. (B) Given,
 $x = 5 - 2\sqrt{6}$
 $\Rightarrow x - 5 = -2\sqrt{6}$
 $\Rightarrow (x - 5)^2 = (-2\sqrt{6})^2$
 $\Rightarrow x^2 + 25 - 10x = 24$
 $\Rightarrow x + \frac{1}{x} = 10$
 $\Rightarrow x + \frac{1}{x} + 2 = 10 + 2$
 $\Rightarrow \left(\sqrt{x} + \frac{1}{\sqrt{x}}\right)^2 = 2$
 $\Rightarrow \sqrt{x} + \frac{1}{\sqrt{x}} = 2\sqrt{3}$

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67. (A) Percentage of candidates who passed in the examination = $(72 + 75 - 60)\%$
= 87%

Then, percentage of candidates who failed in examination = $(100 - 87)\% = 13\%$
ATQ,

13% → 5200

1% → 400

Then, total number of candidates, = 100%
= $400 \times 100 = 40000$

68. (C) Area of a square playground = 992.25 m^2
⇒ (Side of ground)² = 992.25

⇒ Side = 31.5 m

Perimeter of this playground
= $4 \times 31.5 \text{ m} = 126 \text{ m}$

Time to walk one round around the ground

$$= \frac{126}{29} = \frac{126 \times 10}{29} = 43.45 \text{ min}$$

69. (B) Let second discount is $x\%$

ATQ,

$$1800 \times \frac{(100 - 15)}{100} \times \frac{(100 - x)}{100} = 1178.1$$

$$\Rightarrow 100 - x = \frac{117810}{18 \times 85}$$

$$\Rightarrow 100 - x = 77$$

$$\Rightarrow x = 100 - 77$$

$$\Rightarrow x = 23\%$$

70. (B) Let average runs till 14 innings be x .

ATQ,

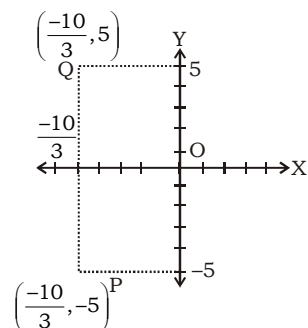
$$14x + 126 = 15(x + 6)$$

$$\Rightarrow 14x + 126 = 90 + 15x$$

$$\Rightarrow x = 36$$

Average after 15th innings = $36 + 6 = 42$

71. (C)



Reflection of the point P $\left(-\frac{10}{3}, -5\right)$

is Q $\left(-\frac{10}{3}, 5\right)$.

72. (C) Amount after 2nd year and 3rd year is ₹ 1650 and ₹ 1815.

Interest when amount ₹ 1650 to ₹ 1815
= $1815 - 1650 = ₹ 165$

$$\therefore \text{Rate of interest} = \frac{165}{1650} \times 100\% = 10\% \text{ (per annum)}$$

73. (A) Let the two numbers be $5x$ and $5y$.

Then, LCM, $5xy = 100$

$$\Rightarrow xy = 20$$

ATQ,

$$5x + 5y = 45$$

$$x + y = 9$$

So, we take $x = 5, y = 4$

We get numbers are 25 and 20.

Their difference = $25 - 20 = 5$

74. (B) Given expression

$$x^2 + \frac{1}{x^2} - 11$$

$$= x^2 + \frac{1}{x^2} - 2 - 9$$

$$= \left(x - \frac{1}{x}\right)^2 - 3^2$$

$$= \left(x - \frac{1}{x} + 3\right) \left(x - \frac{1}{x} - 3\right)$$

So, the difference between these two

$$\text{factors} = x - \frac{1}{x} + 3 - \left(x - \frac{1}{x}\right) + 3 = 6$$

75. (A) Number of books in each stack

= HCF of 336, 240, 96 = 48

$$240) 336 \text{ (1)}$$

$$\underline{240}$$

$$96) 240 \text{ (2)}$$

$$\underline{192}$$

$$48) 96 \text{ (2)}$$

$$\underline{96}$$

$$\times$$

∴ Total number of stacks

$$= \frac{336}{48} + \frac{240}{48} + \frac{96}{48}$$

$$= 7 + 5 + 2 = 14$$

76. (B) We know that,

$$\frac{M_1 D_1 H_1}{W_1} = \frac{M_2 D_2 H_2}{W_2}$$

ATQ,

$$\frac{60 \times 6}{1} = \frac{40 \times D_2}{2}$$

$$\Rightarrow D_2 = 18$$

∴ Required number of days = 18 days

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77. (A) Let loss on selling the watch at ₹600 = ₹x
ATQ,
 $x + 600 = 765 - 2x$
 $\Rightarrow x + 600 = 765 - 2x$
 $\Rightarrow 3x = 165$
 $\Rightarrow x = 55$
 \therefore Cost price of watch = ₹655

78. (D) ATQ,
Population of city after 3 years
 $= 80000 \left(1 + \frac{5}{100}\right)^3$
 $= 80000 \times \frac{21}{20} \times \frac{21}{20} \times \frac{21}{20}$
 $= 92610$

79. (B) First six prime number greather than 30
 $= 31, 37, 41, 43, 47, 53$
ATQ,
Required average
 $= \frac{31+37+41+43+47+53}{6} = \frac{252}{6} = 42$

80. (B) LCM of 3, 4 and 5 = 60
The number divisible by 60 is also
divisible by 3, 4 and 5
 \therefore Three digits number = 15

81. (D) ATQ,
 $\frac{400 \times 90}{100} + \frac{240 \times 25}{100} - x = 270$
 $\Rightarrow x = 360 + 60 - 270 = 150$

82. (A) Required percentage
 $= \frac{211-138}{138} \times 100 = 52.89\%$

83. (C) Bank 1, Bank 4 and Bank 5

84. (B) $I = \frac{265}{143} = 1.85$

$$II = \frac{211}{109} = 1.93$$

$\therefore I < II$

85. (C) Required average amount
 $= \frac{109+123+125+142+157}{5}$
 $= 131.2$

86. (C) Plumblineline is used by Manson for determining the vertical on an upright surface. While scalpel is used by surgeon for surgery.

87. (A) As,
 $\frac{BFL}{IMS}$

Similarly,

$$\frac{NRI}{UY P}$$

88. (B) As, $(16)^2 \Rightarrow (16 + 1)^2 + 1 = 290$
Similarly,
 $(31)^2 \Rightarrow (31 + 1)^2 + 1 = 1025$

89. (B) As, $16 + \frac{16}{2} = 24$

$$\text{Similarly, } 90 + \frac{90}{2} = 135$$

90. (B) As, $\frac{D A I L Y}{Z N G C E}$

$$\text{Similarly, } \frac{T O T A L}{M C R Q U}$$

91. (C)

92. (D) $\frac{D I H}{G E I}$

$$\frac{L K O}{F G I}$$

93. (C) Except **2198**, all others are the perfect cubes.

94. (D) Except **G**, all others are vowel.

95. (C) $\frac{G 9 F}{7 + 9 + 6 = 22}$

$$\frac{D 6 I}{4 + 6 + 9 = 19}$$

$$\frac{S 4 B}{19 + 4 + 2 = 25 \text{ (Perfect square)}}$$

$$\frac{C 7 L}{3 + 7 + 12 = 22}$$

96. (C) $5 + 6 = 11, 11 + 6 = 17, 17 + 11 = 28$
 $28 + 17 = 45, 28 + 45 = 73, 73 + 45 = 118$

97. (B) As, $9 + 4 + 6 - (5 + 3) = 11$
and, $8 + 6 + 4 - (4 + 2) = 12$
Similarly,
 $5 + 4 + 5 - (2 + 3) = 9$

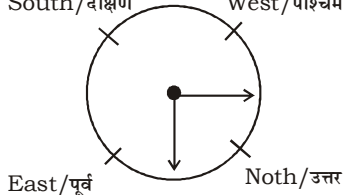
98. (C)

99. (C) $\frac{T S U R P Q}$

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100. (B) South/दक्षिण West/पश्चिम



So, Hour Hand will be in **North-west** direction

101. (A) From figures,

N	B	S
N	Q	T

Hence, Q is opposite to the face containing B.

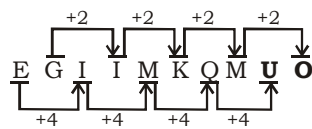
102. (A)

103. (D)

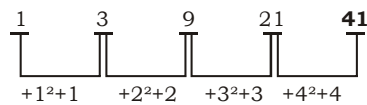
104. (B) 15, 23, 34, 48, 65, **85**

+8 +11 +14 +17 +20

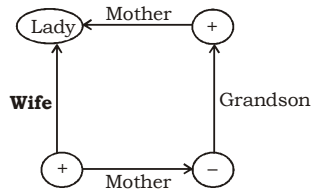
105. (C)



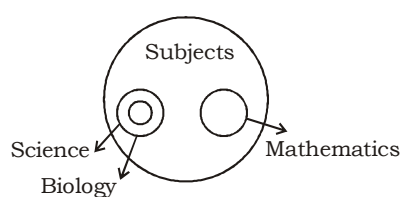
106. (A)



107. (B)

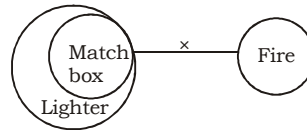


108. (D)



109. (A) **accab/accab/accab**

110. (D)



I. ×

II. ×

Hence, Neither conclusion (I) nor (II) follows

111. (C)

As, S H O E S N A I I L
 $\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$
 $+19 +8 +15 +5 +19 -14 -1 -9 -12 = 30$

Similarly,

B R I N G N A I L
 $\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$
 $2 +18 +9 +14 +7 -14 -1 -9 -12 = 14$

112. (A)

56 B 14 C 7 D 18 A 12 = 34
 After changing the signs,
 $56 \div 14 \times 7 + 18 - 12 = 34$
 $\Rightarrow 28 + 18 - 12 = 34$
 $\Rightarrow 34 = 34$

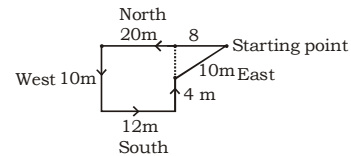
113. (B)

ATQ,
 $9 + 27 \div 3 > 4 \times 3$
 $\Rightarrow 18 > 12$

114. (D)

115. (D)

116. (B)



Required distance = $\sqrt{6^2 + 8^2} = 10 \text{ m}$

117. (A)

118. (B)

119. (D) Total number of triangles = **15**

120. (A)

T O M B
 $\downarrow \downarrow \downarrow \downarrow$
77 69 43 22

Answer key

1. (C)	16. (B)	31. (B)	46. (B)	61. (A)	76. (B)	91. (C)	106. (A)
2. (C)	17. (A)	32. (A)	47. (C)	62. (D)	77. (A)	92. (D)	107. (B)
3. (D)	18. (A)	33. (A)	48. (D)	63. (D)	78. (D)	93. (C)	108. (D)
4. (A)	19. (B)	34. (A)	49. (D)	64. (B)	79. (B)	94. (D)	109. (A)
5. (C)	20. (B)	35. (A)	50. (D)	65. (B)	80. (B)	95. (C)	110. (D)
6. (C)	21. (C)	36. (B)	51. (B)	66. (B)	81. (D)	96. (C)	111. (C)
7. (C)	22. (A)	37. (A)	52. (C)	67. (A)	82. (A)	97. (B)	112. (A)
8. (A)	23. (C)	38. (A)	53. (C)	68. (C)	83. (C)	98. (C)	113. (B)
9. (B)	24. (A)	39. (A)	54. (A)	69. (B)	84. (B)	99. (C)	114. (D)
10. (B)	25. (D)	40. (C)	55. (D)	70. (B)	85. (C)	100. (B)	115. (D)
11. (B)	26. (A)	41. (B)	56. (B)	71. (C)	86. (C)	101. (A)	116. (B)
12. (C)	27. (C)	42. (B)	57. (C)	72. (C)	87. (A)	102. (A)	117. (A)
13. (C)	28. (D)	43. (C)	58. (C)	73. (A)	88. (B)	103. (D)	118. (B)
14. (C)	29. (C)	44. (D)	59. (A)	74. (B)	89. (B)	104. (B)	119. (D)
15. (A)	30. (D)	45. (A)	60. (C)	75. (A)	90. (B)	105. (C)	120. (A)